REMARKS

The non-Final Office Action dated October 15, 2004 has been reviewed and the comments of the U.S. Patent and Trademark Office have been considered. Claim 15 has been amended. Accordingly, applicants respectfully request reconsideration of claims 1-20.

The disclosure stands objected to as lacking antecedent basis for the claimed "first channel surface" and "second channel surface." Applicants respectfully note that the claimed first channel surface is described, in the preferred embodiments, at paragraph 0027, as tapered surface 134c (Figs. 2A and 2B) and the second channel surface is described at paragraph 0028, as interior face 144 (Fig. 2A) of the metering disc 10. Because the claimed features have been described and shown in the application, applicants respectfully request withdrawal of this objection.

Claims 15-20 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,742,727 to Peterson, Jr., ("Peterson"). Insofar as the rejection is applicable to amended claim 15, applicants respectfully traverse this rejection because Peterson fails to show or describe the claimed invention as a whole, as recited in claim 15.

Amended claim 15 recites a method of controlling a spray angle of fuel flow that can be achieved by, among other features, locating the plurality of metering orifices on a first virtual circle outside a second virtual circle formed by a virtual extension of a sealing surface of the seat projecting on the metering disc such that each of the metering orifices extends along the longitudinal axis. The plurality of metering orifices oriented at respective arcuate distances with respect to each other on a first portion of the second channel surface that is oriented at an oblique dimpling angle with respect to the longitudinal axis. The second channel surface includes second and third portions oblique to the longitudinal axis. Support for this amendment to claim 15 is provided by the originally filed application at, for example, paragraph 0042 and in Figure 3A.

In contrast, Peterson shows, in Figure 2, that the metering opening 530 is on a channel surface with a planar surface instead of on a surface oriented at an oblique dimpling angle, as recited in claim 15. Although Peterson shows, in Figure 6, that a metering opening 610 is disposed on a first portion of the metering disc 600 at an oblique dimpling angle, the metering

disc 600 of Peterson fails to show or describe a channel surface with more than one oblique surface with respect to the longitudinal axis. Accordingly, claim 16 is patentable over Peterson.

Claims 1-20 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending application S.N. 10/753,377 ("copending application '377"). The Office apparently concludes that claims 1-20 of the instant application are not patentably distinct from claims 1-20 of copending application '377.

Applicants respectfully traverse the rejection as the claims of this application are patentably distinct from the claims of copending application '377. The claims of the instant application recite a different configuration of a first channel surface than the claims of the copending application '377. For example, claim 1 of the instant application recites a fuel injector that includes, *inter alia, a metering disc including a second channel surface confronting the first channel surface at an angle oblique to the longitudinal axis* **instead** of a metering disc including a second channel surface confronting the first channel surface, the second channel surface having at least a first surface portion generally oblique to the longitudinal axis and at least a second surface portion forming curved surface with respect to the longitudinal axis, as recited in claim 1 of copending application '377. Further, instant claim 15 recites a method of controlling spray angle that includes, *inter alia, a plurality of metering orifices oriented at respective arcuate distances with respect to each other on a first portion of the second channel surface that is oriented at an oblique dimpling angle with respect to the longitudinal axis; the second channel surface includes second and third portions oblique to the longitudinal axis* **instead** of a method that includes reducing a sac volume formed between the first channel surface and the second channel surface with a curved portion of the second channel surface that intersects the longitudinal axis, as recited in amended claim 16 of copending application '377. Accordingly, claims 1-20 of this application are patentably distinct from copending claims 1-20 of the copending application '377.

Claims 1-20 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending application S.N. 10/753,378 ("copending application '378"). The Office apparently concludes

that claims 1-20 of the instant application are not patentably distinct from claims 1-20 of copending application '378.

Applicants respectfully traverse the rejection as the claims of this application are patentably distinct from the claims of copending application '378. The claims of the instant application recite a different configuration for a second channel surface than the claims of the copending applciation '378. For example, claim 1 of the instant application recites a fuel injector that includes, *inter alia, a metering disc including a second channel surface confronting the first channel surface at an angle oblique to the longitudinal axis* **instead** of a fuel injector that includes a metering disc including a second channel surface confronting the first channel surface; the second channel surface having at least a first surface generally oblique to the longitudinal axis and at least a second surface curved with respect to the longitudinal axis, as recited in claim 1 of copending application '378. Further, instant claim 15 recites a method of controlling spray angle that includes, *inter alia, locating the plurality of metering orifices on a first virtual circle outside a second virtual circle formed by a virtual extension of a sealing surface of the seat projecting on the metering disc such that each of the metering orifices extends along the longitudinal axis, the plurality of metering orifices oriented at respective arcuate distances with respect to each other on a first portion of the second channel surface that is oriented at an oblique dimpling angle with respect to the longitudinal axis, the second channel surface including second and third portions oblique to the longitudinal axis* **instead** of a method of controlling spray angle that includes flowing fuel through each of the plurality of metering orifices located on the second channel surface oriented at a dimpling angle oblique with respect to the longitudinal axis such that a flow path of fuel is oblique to the longitudinal axis at least as a function of the radial velocity and the dimpling angle, as recited in claim 16 of copending application '378. Accordingly, claims 1-20 of this application are patentably distinct from copending claims 1-20 of the copending application '378.

Notwithstanding these patentably distinct differences between the instant claims, applicants respectfully assert that the rejection also fails to establish a *prima facie* case of obviousness-type double patenting in accordance with the requirements set forth in MPEP §804 (8th Ed., Rev. 2, May 2004). That is, the Examiner has failed to establish why one of ordinary skill in the art would conclude that the invention recited in the instant claims 1-20 is an obvious

variant of the invention recited in claims 1-20 of copending applications '377 or '378. Applicants respectfully submit that this burden has not been met. That is, there must be a suggestion or teaching in the prior art that would motivate one of ordinary skill in the art to modify the invention recited in claims 1-20 of copending applications '377 or '378 to reach the invention recited in the instant claims 1-20. Applicants respectfully submit that the Office has not provided an adequate motivation or suggestion to modify the claims of copending applications '377 or '378 in order to render the instant claims obvious and therefore patentably indistinct. Should the Office believe otherwise, it is respectfully requested that the Examiner contact the undersigned. Accordingly, these provisional rejections should be withdrawn.

Claims 2-14 and 16-20 depend ultimately from one of allowable claims 1 and 15, are therefore also allowable, as well as for reciting additional features.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration and reexamination of this application and allowance of the pending claims. Applicants respectfully invite the Examiner to contact the undersigned at (202) 739-5203 if there are any outstanding issues that can be resolved via a telephone conference.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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Date: January 18, 2005

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